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Central Food Technological
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National Information Centre for Food Science and Technolgy
Central Food Technological Research Institute, Mysore-570013
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RAW MATERIALS

70 **A new edible mushroom for U.P. plains**

A highly proteinaceous edible mushroom species has been developed by the National Botanical Research Institute, Lucknow, following the discovery of a new pleurotoid fungus, drawing on the living trees of Polyalthia longifolia (Sonn) in the institute campus. Analysis of the protein and amino acid compositions on dry weight basis has shown the mushroom to be specially rich in lysine (7.2%), besides being a good source of other essential amino acids, water-soluble proteins (24.2%) and sugars.
(Technology Awareness Service. 5(1); 1979; 16)

STORAGE AND INFESTATION CONTROL

71 **Fruit storage without refrigeration**

Lemons can be preserved for a year or more without refrigeration, according to two Israeli scientists. The lemons are wrapped in special polyethlene film, mixed with fungicides and other chemicals to protect the skins. The method has been proven for lemons and it is believed that it could apply to other fruits and vegetables.
(Climate Control. 12(3); 1979; 44)

72 **Rat repeller**

Oriole Services and Consultants PVt. Ltd. of Bombay, has introduced a rat expeller. The unit is small, light weight, and easy to operate. It effectively covers an area of 200 square mtrs. The unit emits sound above the audible range and causes stress conditions in rodents compelling them to flee from food processing plants, eating establishments, graneries, warehouses, ships etc. It is completely safe, operates on 230 V and has negligible power consumption
(Financial Express. March 2, 1980; p 3)

FOOD ADDITIVES

73 Brain effects of Red Dye No.3

A National Institute of Health Scientist has found the first laboratory evidence that low concentrations of Red Dye No.3 can affect the brain. Experiments showed that the dye partially blocks the brain cells' uptake of dopamine, a natural substance brain cells use to talk to each other. Since dopamine has a profound effect on human moods and movement, the evidence is consistent with the theory that the dye could cause hyperactivity in children.
(The Nation's Health. October, 1979; 7)

74 Spray dried caramel flavour

A spray dried artificial caramel flavour designed for use in convenience foods has been developed by Ottens Flavours. When used in foods containing brown sugar and vanilla, the caramel flavour gives an overall enhancement of the carmel taste. It is ideal for use in baked goods, toppings, and icings. About 1 or 2 oz. of the caramel will flavour 100 lb. of finished product. It is also available in liquid form.
(Bakers Digest. 53(3); 1979; 56)

75 Artificial mushroom flavour

A bulletin from Virginia Dare reports the development of a water soluble artificial mushroom flavour which can be used either to augment the flavour of natural mushrooms or as a flavour replacement. Called Artificial Mushroom Flavour 621, the product has been formulated for use in soups, sauces or gravies, among other applications.
(Food in Canada. 39(7); 1979; 72)

76 New range of carrageenan gums

Using a specially selected variety of carrageenan combined with a unique European processing technique has enabled TIC Gums to offer a purified extract ideal for suspending cocoa in milk and for imparting creamy mouth-feel to dairy products. Called TIC Colloid 710 powder, the product is pretested for high milk reactivity affording rigid milk gels of 105 $\pm$ 15 ppm on a 1" diameter disk test

with a standard bloom Gelometer. Available as a free-flowing powder a tan colour and typical bland flavour, colloid 710 is slightly alkaline in nature exhibiting a pH of 7 to 9.5 typically at 20°C.

Colloid 720 is highly soluble in cold water and able to emulsify and perform in all alkaline, neutral and acid solutions to pH 4.0. With its rapid solubility in water, Colloid 720 need simply be poured into the aqueous solution and requires little stirring or agitation to achieve the colloidal characteristics. Its principle use in foods is achieving co-colloids with other foodstuffs whose suspensions would otherwise settle during storage. For optimum hydration, heating is required. Colloid 730 and Colloid 760 improve mouth-feel and uniform appearance in chocolate milk and chocolate drink beverages. (Food in Canada. 39(7); 1979; 72)

PROCESSES

77 Concentrated coffee frozen fresh for caterers

In this system instantly produced quality beverage is dispensed from an automatic machine. The coffee is processed by freezing the concentrate produced in the factory; the defrosted concentrate is added to hot water in the dispenser.

The water used for extraction is softened, if necessary, with a polyphosphate filter to reduce scaling, and the heated water is lead through the ground coffee, under pressure, to produce the concentrated extract. Cooking time is controlled to produce the desired flavour, over-cooking increases the bitterness of the coffee and only tends to detract from the true flavour. The soluble solids content of the concentrate is determined to ensure a fixed level in the tins.

The extract is lead through a cooler chilled with ice to reduce the temperature to +4°C and so to preserve the flavour; it is then stored in an ice-cooled water tank. From here, it proceeds to the packaging machine. These are deep-frozen at a set freezing velocity down to -26°C, being transferred to cold storage warehouses once the temperature has dropped to -18°C.

At -18°C the tinned coffee extract will remain viable for one year. It is delivered to the customer in this deep-frozen state and is then thawed out

slowly in a refrigerator, where, at a temperature of +6°C it has a lifespan of three weeks. The Moccomat dispenser contains a refrigerated compartment which should also be maintained at +6°C, to allow the extract, transferred from its tin into the dispenser bottle, to stay good for one week.
(Food Flavourings Ingredients and Processing. 1(4); 1979; 208)

78 Power alcohol from tapioca

The Central Tuber Corps Research Institute (CTCRI) at Trivandrum, has designed a pilot plant for production of power alcohol from tapioca.

The plant, which is in the process of fabrication and erection can produce per batch 100 litres of alcohol to be used for experimentation as automobile fuel. The production cost is estimated at Rs. 2.75 per litre the break-up being cost of raw material Rs.1.66, cost of acids Rs.0.25, processing cost, including labour, power and transport Rs.0.54 and dehydration cost Rs.0.30.

The total requirement of cassava in Kerala, the largest cassava-growing state, for various food, feed and industrial needs is 35 lakh tonnes, of which the requirement for human consumption is 21 lakh tonnes. The estimated area and production of cassava in 1976-77 are 3.28 lakh hectares, and 52 lakh tonnes respectively. Thus in Kerala alone about 17 lakh tonnes are available to meet the requirement of power alcohol.
(Chemical Digest. 11(3); 1980; 11).

79 Solar drier for fish

In Sri Lanka a solar drier has been developed which could be manufactured with little difficulty from material locally available.

The main element of the drier is a heat-catching apparatus, no more complicated than two sheets of black corrugated iron clamped together in a crest-to-crest position so that channels are formed inside. These traps-three have been found to be the most suitable-are connected by pipes to a simple blower which draws in the air from the tunnels and blows it out the other end into a drying chamber. Inside the chamber the fish are laid out on openended shelves so that the hot air passes on both sides of them as well as above and below.

All sorts of fish, from mackerel to shark, can be dried this way and the process takes less than two days, compared with three or even more days with the

traditional system. And the quality of the finished product is the same as fish dried by the more expensive electrical means.
(Tribune 13th January, 1980; p 6)

BYPRODUCTS AND WASTE UTILIZATION

80 By-products from waste

An effluent treatment process which deals effectively with liquid wastes and at the same time provides a considerable bonus in most installation in the form of saleable by-products is now available in New Zealand from Robt Stone & Co. Ltd. The system uses a unique method of dissolving air and chemicals including protein precipitating materials which are able to remove the dissolved protein in the waste water. The effluent, at a suspended solids concentration of about 1000 p.p.m. is pumped into 12 flotation tanks. It is treated with acid to encourage protein coagulation with further chemical addition to bind and stabilise the protein.

Using a process developed by [illegible], dissolved air under pressure is then pumped in, creating extremely fine bubbles throughout the liquid. Protein material rises with the bubbles to form a surface layer of solids. The clean liquid (now about 100 p.p.m. of suspended solids) is drained from the tanks and discharged.

Further processes are applied to the solid material which eventually emerges as a fine powder, high in protein content and ideal as a supplementary livestock feed. The whole process is fully automated.
(Food Technology in New Zealand. 14(6); 1979; 9, 11)

81 Paddy drying with rice husk

Paddy husk, a waste product of rice milling, can now be commercially used in a rice mill itself for drying paddy.

The Central Mechanical Engineering Research Institute, Durgapur, and the Central Fuel Research Institute, Dhanabad, have jointly developed a paddy husk combustor-cum-heat exchanger for this purpose. The project was sponsored by the Union ministry of agriculture and the Food Corporation of India (FCI).

The first paddy husk-based drying plant installed at the FCI's rice mill at Durgapur has successfully completed its trial runs recently and has been handed over to the FCI for regular operation. It has a capacity of drying about 1.2 tonnes of parboiled paddy by burning nearly 100 Kg. of husk an hour.

The new model of paddy dryer consists of a vertical cylindrical combustor with a heat exchanger mounted over it. Husk is fed by screw conveyor and injected into the combustor with the help of Conveying air from a blower and a distributor. A scraper attached to the stirrer removes the ash through holes at the bottom. Hot air is drawn by a blower from the heat exchanger and delivered to the dryer through ducts.

The unit is claimed to ensure 100 per cent burn of the husk inside the combustor. The ash can be used as fertiliser and for the production of cement, besides some other potential applications. The technique eliminates the chances of sulphur contamination of rice which normally occurs with furnace oil fired drying.
(Times of India. 16th February 1980; p 15)

PROCESSED PRODUCTS

82 Soy-whey based weaning food

The Soy-whey food developed at the National Dairy Research Institute, Karnal, is specially formulated for growing children, keeping in view the nutritional requirements. The product is expected to serve as an excellent first solid food for babies changing from mother's milk to cereal food as well as pre-school children. The soy-whey food has been prepared from soybean and whey. The soy-whey food is considerably cheaper (Rs.8/- per Kg) than the cereal weaning foods (upto Rs.30/- per Kg.) or milk based baby foods currently available in the market.
(NDRI Newsletter. 10(4); 1980; 3).

83 Sweet wine from mangoes

Scientists are trying to brew sweet wine from mangoes and the initial results are encouraging. The varieties tried included Dasehari, Chausa, Langra, Fajri, Swarnrekha, Safeda and Mallika. The products were sampled by a panel of

tasters, who declared that the most acceptable drink was the one made from the Fajri, grown mostly in West Bengal and Uttar Pradesh. The fermentation processing mango pulp, yeast and acetic acid took about 10 days. The resulting samples contained 12 to 18 percent of alcohol.
(Economic Times. 8th March 1980; p 3)

84 Sudam drink - a new butter milk whey base beverage

A method for utilising surplus milk or butter milk or skim milk is suggested. The butter milk is prepared as it is commonly done in home by using pure lactic culture followed by churning. The butter milk is clarified by coagulation and denaturation of milk proteins by heat and removal of all these solids-not-fat by decantation or by straining. The acidity level is adjusted between 0.4 and 0.6 by adding water. Sugar is added depending upon the acidity level: that is 0.6 per cent acicity 14 percent sugar, 0.4 per cent acidity 12 per cent sugar and 0.5 percent acidity 13 percent sugar. Sugar is mixed with the clarified butter milk and is processed by heating till boiling and maintaining at boiling temperature for 15 min. Edible gelatine at 0.1 to 0.2 percent may also be added. Cooling should be done slowly to room temperature after boiling. It is essential to age the drink for a minimum period of 48 to 72 hrs. at chilled temperature. In homes where freezing facilities are not available it should be prepared for immediate utilisation. The drink besides retaining the lactose and minerals will prove a refreshing drink both in winter and summer.
(Indian Farming. 28(6); 1978; 31-32)

85 A new meat product

The Department of Animal Products Technology of Haryana Agriculture University has prepared a ready-to-eat meat product. It is called "meat block". Each block weighing about 1 kg is sold in the frozen form. The block contains besides minced meat, onion, garlic, binding agents, curing agents broth and fat. The minimum quantity of meat in the block is 50 per cent. It can be kept in deep freeze for two months.
(Tribune. 12th January 1980; p 6)

EQUIPMENT & MACHINERY

86 Weighing liquids in stock tanks

A new system of weighing liquids in stock tanks has been introduced by Stevens Weighing Machines. Based on the gyroscopic force measurement (GFM) unit, the technique exploits the phenomenon called primary precession which allows a gyroscope with its rotor operating at a fixed speed to be used as a linear force transducer. It operates using Archimedes principle and weighs only the tank contents, it is independent of possible changes in tare weight and is not affected by temperature and liquid density. It can be fitted to existing tanks without having to jack up the vessel and install pressure transducers.

Digital signals from the GFM can be transmitted over considerable distances without deterioration and, if necessary, signals from several tanks can be multiplexed and fed to a single remote measuring and display unit. The signals can also be used to initiate the control of valves of liquid filling and dispensing.

Due to the repeatable high accuracy, claimed to be in the order of I part in 10 thousand of full scale, it is expected that the unit will have many applications in the handling of high cost liquids.
(Food Trade Review. 49(5); 1979; 268)

87 Ultra scan metal detector

The new improved Ultra Scan Metal Detector has been designed for detecting ferrous or non-ferrous tramp metal in bulk product or sealed packages of food products at normal line speeds. The Ultra Scan incorporates every feature desire by food processors - extreme sensitivity, automatic balance, no need for adjustments. Self checking feature constantly monitors operations. Sealed and locked control panel prevents unauthorized tampering. It has a product compensation dial to set for food products that act as a conductor.
(Food in Canada. 39(8); 1979; 53)

88 Simple grain pre-cleaner

The Department of Processing and Agricultural Structures has developed

a rotary screen grain pre-cleaner which can be used with equal efficiency for cleaning both wheat and paddy prior to procurement in the grain markets and village-level mandis.

This machine, which is very simple in design and construction, consists of a rotary perforated screen and a blower fitted on an angle frame. It requires 1.5 Kw (2 hp) electric motor to operate and involves less cost of maintenance. It has a high capacity of cleaning 90 quintals of wheat or 50 quintals of paddy per hour.

The cost of cleaning of wheat and paddy is estimated to be six paise and ten paise per quintal, respectively.
(PAU News. 18(3); 1979; 2)

89 **Air classifier**

Tyco air classifier mechanically separates into fine and coarse grades dry powdered materials such as chemicals, minerals, metals or food products. It can be used in conjunction with a grinding mill or fed from hoppers or bins or screens. The classification ranges from the passage of 80% through 60 mesh to 99% through 325 mesh. Separation is centrifugal. Material is poured on a revolving plate down a vertical shaft and lifted into the air stream created by whizzer blades. Fineness is controlled by changing the size and number of whizzer blades or by convenient adjustment of vertical slice dampers. Control over product uniformity is close with minimum loss of fines in tailings. Compact build ensures freedom from dust. Large inspection doors give ready access to all moving parts. The classifier is available in three models: AC-10 (0.5 HP motor, 38 mm diameter inlet); AC-30 (5 HP, 64 mm); and AC-72 (15 HP and 102 mm). Either single or double banks of whizzer blades can be installed depending upon the material used and product required.
(PFNDAI Newsletter No.1; 1980; 2)

90 **Vegetable steam blancher and cooler**

A combined steam blancher and cooler which can be used to blanch a wide variety of vegetable products from peas to broccoli and spinach, etc. has been developed by FEMIA. The machine consists of three sections, namely blanching and first and second stage cooling.

Product on entering the machine is immersed in a hot water tank for two reasons. One is to assist in bringing the product up to temperature and the

second is that the tank forms a water seal between the steam chamber and atmosphere and prevents steam wastage. The product is then conveyed from the tank on the steam chamber conveyor chain where it is blanched.

On leaving the blanching section the product passes through a water curtain to provent steam leakage, on to the first and second stage cooling conveyor where the product is immersed in cooling water tanks, through which the water is pumped contraflow.

To prevent excessive steam consumption the steam chamber canopy is well insulated and is in a water seal to prevent leakage. This canopy can be easily raised to facilitate access for maintenance and cleaning.
(Food Trade Review. 49(5); 1979; 267)

91 Crusher-cum-juice extractor

A crusher-cum-juice extractor has been designed at RRL, Jorhat for extracting juice from fibrous vegetables. A prototype model of 25 Kg/hr capacity was fabricated in the workshop. The machine has been successfully used for extracting pineapple juice; it extracts about 80% of juice.
(Technology Awareness Service. 5(1); 1979; 15)

92 New automatic filler

Mateer Burt's new Bursa-Fill 52-SC for pumpable products automatically fills containers ranging from 4 ounces to 5 galons in size at production rates ranging from more than 100 cpm for 8 ounce jars to 35 cpm for number 10 tins. Changeovers are normally 15 minutes or less.

The unit features twin filling heads with a common product hopper and an extra-wide automatic conveyor to accommodate glass, plastic or metal; trays, jars or pails. Multiple filling nozzles and a complete selection of shutoff valve designs tailor the machine to specific production requirements.
(Food Production/Management. 101(8); 1979; 24)

93 Bottle filling machine

A bottle filling machine that is operated hydraulically and can be used to fill exact quantities of liquids in bottles has been developed. The low-cost unit will be particularly suitable for small scale bottle filling units. Know-how for the machine is available for commercial exploitation.
(Industrial Products Finder. 8(2); 1979; 45)

94 Meat grading made easier

The fat depth indicator for carcass meat is now being marketed world wide by Hennessy & Chong Ltd. of P.O. Box 6180, Wellesley Street, Auckland, New Zealand. Combining an optical measuring system with electronics, the FDI detects the change in colour between fat and muscle and displays the distance between that interface and the outer carcass wall digitally in mm. The fat depth indicator will also detect marbling. It is designed for use on all meat carcasses including beef, pork and sheepmeat. Power is supplied by a 12 volt DC external power pack.

The instrument automatically rests to zero when pushed into the next carcass. A built-in memory allows the recall of the last measurement. The FDI has no buttons or other external controls, but may be linked to a printer or data processing machine. The instrument is lightweight, fast and easy to operate, and fully automatic.
(Food Trade Review. 49(6); 1979; 345)

95 A mini smoker

A two cubic foot smoker which can cure up to 20 lb of fish or meat in three to six hours is claimed to be proving a great success with British fishing community and domestic users. It is claimed to be the first inexpensive unit to provide truly professional results, "imparting delicious smoke house flavours of hickory, apple, cherry and alder wood to fish, bacon or ham, chicken or duck."

The smoker consists of an aluminium smoking chamber with electric heat element and lid, a rack carrying three grills, and a flavour pan. The pre-brined fish or meat is laid on the grills, the rack placed in the smoking chamber, and a pan of fuel (hardwood chips) placed onto the heat element at the bottom of the chamber. When the desired smoking time has elapsed the electric lead is unplugged and the rack removed from chamber. The smoker, which comes complete with recipe book and 2lb pack of hickory fuel (enough for about six full smokings) sells in the UK for £ 31.25.
(Fishing News International. 18(5); 1979; 59)

96 Rice husk stove

The Filipino word for rice husk is "ipa" and ipa stoves were common before the introduction of kerosene, gas and electricity. High fuel costs

have assisted its comeback. It gives out an almost smokeless heat. A galvanized metal hopper with a valve lets the fuel in at one end and a pipe takes out the smoke at the other. One ipa stove, built by a local craftsman, caters for all the cooking and heating needs of a hospital at a cost of some 10 cents a day. (Development Forum. 8(2); 1980; 10)

97 Detecting cracks in stainless steel dairy equipment

Six steps were involved in the stress corrosion crack detection method —

(1) Thorough cleaning of the equipment surface to be tested. All soil including milk deposits ("milkstone"), scale, detergent and sanitizer residues, milkfat, and grease must be removed. To ensure complete removal of residual fats, grease and oils, a solvent-type cleaner (Turco Pre-Chek) was applied as a spray and wiped dry.

(2) A water-soluble fluorescein dye in penetrant fluid (Fluro-Chek, WP-1 penetrant) was applied liberally to the surface as a spray or by brush.

(3) After 5 min. excess dye-penetrant was rinsed away with a pressure spray of water.

(4) The surface was then dried thoroughly.

(5) A powder (Fluro-Chek, NAD Developer) was applied to absorb the penetrant and dry out the crack.

(6) The treated surface was observed with a black light (ca. 366 nm wavelength) (Ultra-violet products, Inc.).
(Australian Journal of Dairy Technology. 34(2); 1979; 757-77)

98 Boiler test kit

Bacharach Instrument Company, USA, have introduced a boiler test kit for commercial and industrial boilers. It contains instrumentation for accurate tuning of boilers which may be fired by oil, natural gas, coal or a combination of fuels. Regardless of the fuel used, the kit conveniently and quickly evaluates fire-side boiler operation, and enables service engineers to tune burners as efficiently as equipment design permits. The kit contains an oxygen fyrite and a carbon dioxide fyrite for measuring flue gases. Also included is a True Spot smoke tester, a Tempoint stack thermo meter, an inclined manometer for forced

draft (positive pressure) systems prevalent in modern commercial/industrial boiler designs, and a Monoxor carbon monoxide detector. One of the important items is the fire efficiency finder used to calculate combustion efficiency and stack loss.
(Industrial Products Finder. 8(2); 1979; 47)

PACKAGING

99 New packaging material for perishables

A new packaging material for perishable farm produce, and machinery to automate its use has been developed at the Agricultural Research Organization, Bet Dagan. Each piece of fruit, each vegetable or small quantities of them are sealed into the transparent plastic. The versatility of this new packaging method, has been enhanced by several special procedures. One of these introduces materials with high vapour tension to prevent bets; a second adds ethylene absorbing material to delay the ripening process; a third counteracts the production of off-flavours; and a fourth introduces hygroscopic substances, to prevent the concentration of water droplets within the package. By sealing in the peels (removed dropping, lemons, can be kept for nine months; and grape fruits were stored successfully for half a year, at 11°C and 85 percent relative humidity. In tests, rot in chilled fruit was reduced to 1.7 per cent, after ten six months in storage. Sealed fruit presents weight loss, due to drying, for example in storage weight loss was reduced from 22 to 5 per cent.
(News from Israel. 25(9); 1979; 9)

00 Hand operated strip packing machine

This hand-operated strip packing machine is suitable for packing powder, granules, tablets or capsules. It has been specially designed for small-scale and village industries, laboratories, pilot production and pilot plants. The machine includes a rectangular die, made of high carbon steel and fully heat-treated for strength and hardness. Quality heating elements are embedded in a rectangular tile for uniform heating. The upper part of the die system is fixed to the threaded shaft and lever. It

can be moved up and down. The bottom is fixed. Capacity is 1,500 tablets/ hour or 600 pouches/hour.
(PFNDAI Newsletter No.1; 1980; 2)

ANALYSIS

101 Moisture determination

It only takes a few minutes to attach the new LP 15 infrared dryer to almost any Mettler electronic top loading balance. The process is both quick and easy.

Samples are weighed into lightweight aluminium or stainless steel pans. Simply closing the hood of the dryer will then automatically switch on the twin-tube infra-red radiators. A 12 position switch on the LP 15 enables the operator to select the heat instensity most suited to the sample. The drying process takes the minimum amount of time without damaging the sample. The heat intensity of every test is clearly defined by the switch position which means that test conditions are easy to reproduce.

Drying determinations are easier still, if, together with the LP 15, a Mettler PC balance and GC 301 application input device is used. Use of a PC balance means the sample no longer needs to weigh exactly 1 g, 10g, or 100g.

The advanced microprocessor of the PC balance automatically performs all necessary ratio calculations. At the touch of a button, the balance indicates weight changes as they occur in precent or in grams.

A calculatory pointer can also be connected to any Mettler balance, equipped with a digital output while the LP 15 is also in use. This gives the operator easy to read records of wet weight, dry weight and weight loss. The moisture content of the sample is also calculated in percent. Those who wish to record the drying process continuously as a function of time can simply connect a digital/analog converter and a compensations recorder to the balance.
(Process Biochemistry. 14(7); 1979; 14)

102 Grain moisture meter

The device is based on integrated circuits (ICs) and the final reading of moisture contents are given on a 3-digit light emitting/diode (LED) display in percentage. The device can measure over a range of 5-30% (Accuracy $\pm$ 0.25%, $\pm$ digit).
(CSIR News. 30(1); 1980; 8)

103 Detection of carob in cocoa products

The British Food Manufacturing Industries Research Association has made arrangement for detection of carob powder and estimation of the amount pres in cocoa products by gas chromatography, as an analytical service to members. For those who wish to perform their own analyses, samples of characterised carob material can be made available. These carob standards are supplied ready derivatised and may be injected directly into a gas chromatograph. Each vial, which contains sufficient material for more than a hundred injections, is sent with a copy of the chromatogram obtained during the analysis of the standard.
(Food Trade Review. 49(6); 1979; 353)

104 Grain amylase analyser

The Model 191 grain amylase analyzer, is a low-cost dedicated nephelometer designed to provide a simple, rapid and reliable method for the measurement of alpha amylase activity in wheat and flour samples. The model 191 complete with reagents and calibrator is being offered as a system.

The method of analysis employed is a modification of nephelometric procedure used in clinical laboratories. The method measures the specific enzymatic hydrolysis of a beta limit dextrin suspension when acted upon by alpha-amylase. The calibrator is derived from a natural base, thereby ensuring reproducibility. The Model 191 is expected to find wide applications in the wheat and flour milling industries, baking industries and in quality control laboratories.
(Food In Canada. 39(8); 1979; 53)

105 New assay for sugars

A new assay method recently perfected in the United States, provides

direct and accurate measurement of sugars --- dextrose (glucose), sucrose, lactose and others.

The assay procedure combines immobilised enzyme techniques with a linear electrochemical sensor and differs from other methods by giving measurements specific to the sugar being analysed. Instead of merely measuring density or total solids, subject to further claculation or estimate, this instrument displays a direct read-out of specific sugar concentration. The assay is completed within one minute and the result is shown on the digital meter. An anologue voltage proportionate to substrate concentrations is provided as a recorder output. This will be useful in food and chemicals field.
(Food Trade Review. 49(6); 1979; 346)

COMMERCIAL INTELLIGENCE

106 GNP of India.

India is among the 21 poorest countries of the world whose per capita gross national product (GNP) was less than $ 200 in 1977. In that year India's percapita GNP was a mere $ 10, but in terms of total GNP India ranked 15th. In 1973 India occupied 10th place. The backslide continued, and in 1978 India has slumped to 16th in terms of total GNP. In 1977 the US recorded $ 8,750, Bermuda $ 8,520 and Canada $ 8,350. Those countries whose per capita GNP was less than $ 200 in 1977 were Bangladesh, Bhutan, Burma, Butrundi, Cape Verde, Chad, Cameroon, Ethiopea, Guinea-Bissau, India, Lao peoples Democratic Republic, Malaw Maldives, Mali, Mozambique, Nepal, Niger, Rwanda, Somalia, Sri Lanka and Uppel Volta. Pakistan, the Philippines, Indonesia, Thailand and Ghana recorded a higher per capita GNP than India. India's shares in world GNP and population in 1977 were 1.29% and 15.61% respectively.
(Data India. No.6; 1980; 63)

107 Targets of food production

The food grains production target for 1980-81 has been fixed at 135 million tonnes. Following discussion with the Planning Commossion, the target

for the year beginning July, 1980 includes 55 million tonnes rice, 36 million tonnes wheat, 14 million tonnes pulses and 30 million tonnes coarse grains like bajra and jowar.

Production in 1978-79 was 131.5 million tonnes. A year earlier, 1978-79, the total production of food grains was 125.60 million tonnes. Figures for 1979-80 are yet to come.
(Economic and Commercial News. 10(11); 1980; 9)

108 Production of Black pepper in 1978-79

State	Area (Thousand hectares)	Production (Thousand tonnes)
Karnataka	3.68	1.00
Kerala	80.79	20.88
Tamilnadu	0.43	0.09
Pondicherry	0.01	0.01
All India	84.91	21.98

(Directorate of Economics & Statistics, Ministry of Agriculture and Irrigation, Government of India)

109 State-wise production of guar seed

(Thousand Tonnes)

States	1976-77	1977-78
Gujarat	40.1	44.3
Haryana	128.2	166.8
Punjab	86.0	46.1
Rajasthan	854.7	683.3
U.P.	1.0	1.3
All India	1110.0	941.8

(Profodcil Bulletin. 14(2); 1979; 7)

All India: Rural — Number of sample villages: 8626

Items	Monthly per capita expenditure class in rupees														
	0-13	13-15	15-18	18-21	21-24	24-28	28-34	34-43	43-55	55-75	75-100	100-150	150-200	200 & above	All Classes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Cereals	6.22	8.45	9.94	11.42	12.84	14.32	16.18	18.33	20.46	23.07	24.73	26.86	30.78	37.49	17.92
Gram	0.02	0.10	0.06	0.08	0.10	0.11	0.15	0.20	0.30	0.39	0.60	0.85	0.97	1.79	0.25
Cereal substitutes	0.28	0.35	0.29	0.27	0.25	0.22	0.21	0.24	0.21	0.24	0.24	0.21	0.22	0.40	0.24
Pulse and products	0.17	0.31	0.43	0.57	0.76	0.93	1.21	1.55	2.05	2.64	3.28	4.13	5.32	8.94	1.89
Milk and products	0.08	0.15	0.18	0.32	0.48	0.80	1.26	2.16	3.69	5.91	9.99	14.67	18.49	23.67	3.22
Edible oil	0.25	0.36	0.49	0.61	0.74	0.90	1.11	1.42	1.77	2.26	2.95	3.97	5.09	11.63	1.55
Meat, fish and eggs	0.18	0.26	0.29	0.39	0.49	0.58	0.73	1.04	1.30	1.73	2.12	2.57	3.62	6.45	1.09
Vegetables	0.51	0.63	0.71	0.83	0.91	1.07	1.26	1.51	1.80	2.28	2.75	3.24	4.28	6.83	1.59
Fruits and nuts	0.05	0.06	0.08	0.10	0.13	0.16	0.22	0.32	0.48	0.75	1.14	1.88	2.64	4.21	0.45
Sugar	0.12	0.17	0.26	0.39	0.51	0.67	0.90	1.29	1.86	2.74	4.06	5.76	8.45	17.18	1.66
Salt	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.10	0.11	0.14	0.18	0.09
Spices	0.35	0.47	0.56	0.67	0.75	0.84	0.97	1.11	1.29	1.49	1.78	2.16	2.81	3.80	1.14
Beverages & refreshments	0.15	0.20	0.28	0.35	0.43	0.51	0.64	0.83	1.15	1.63	2.56	3.69	5.77	8.00	1.07
Total Foods	8,45	11.59	13.65	16.08	18.47	21.19	24.92	30.09	36.45	45.22	56.30	70.10	88.58	130.57	32.16

(Contd....

Items	Monthly per capita expenditure class in rupees													
	0-13	13-15	15-18	18-21	21-24	24-28	28-34	34-43	43-55	55-75	75-100	100-150	150-200	200 & above	All Classes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Cereals	4.30	6.69	7.97	9.30	10.62	11.38	12.95	14.45	15.50	16.38	16.56	16.27	15.97	15.86	14.77
Grams	0.01	0.03	0.04	0.05	0.06	0.08	0.09	0.13	0.18	0.24	0.29	0.35	0.38	0.45	0.20
Cereal Sub-stitutes	0.12	0.20	0.15	0.18	0.11	0.09	0.08	0.08	0.07	0.08	0.08	0.10	0.11	0.07	0.08
Pulse and products	0.21	0.41	0.57	0.69	0.86	1.04	1.32	1.68	2.08	2.57	3.03	3.27	3.77	4.04	2.16
Milk and products	0.19	0.31	0.39	0.63	0.85	1.25	1.71	2.81	4.22	6.44	9.37	13.46	19.32	25.94	5.91
Edible oil	0.28	0.52	0.64	0.86	1.01	1.26	1.59	2.11	2.79	3.60	4.49	5.23	6.56	7.68	3.07
Meat, fish and Egg	0.17	0.36	0.42	0.46	0.61	0.72	0.93	1.23	1.63	2.21	2.97	4.00	5.65	8.73	2.07
Vegetables	0.41	0.53	0.72	0.96	1.11	1.32	1.55	1.80	2.45	3.09	3.90	4.74	6.09	7.44	2.77
Fruits and nuts	0.09	0.11	0.16	0.15	0.17	0.22	0.27	0.42	0.65	1.15	1.91	3.24	5.43	9.25	1.27
Sugar	0.28	0.46	0.56	0.72	0.87	1.05	1.35	1.59	2.07	2.60	3.25	3.81	4.58	5.96	2.28
Salt	0.05	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.09	0.09	0.10	0.12	0.07
Spices	0.31	0.61	0.67	0.76	0.83	0.91	1.03	1.17	1.31	1.50	1.69	1.87	2.10	2.52	1.37
Beverages & refresh-ments	0.58	0.77	1.00	0.90	0.86	1.12	1.40	1.71	2.48	3.97	7.34	13.37	19.99	30.94	4.82
Food: Total	7.00	11.04	13.34	15.72	18.02	20.50	24.16	29.35	35.50	43.91	54.97	69.80	90.05	119.00	40.84

(Data India No.6; 1980) .

111 Consumption pattern of cereals

Quantity of consumption of rice, wheat, other cereals and all cereals per person per month in rural and urban areas of the country: NSS 25th, 27th & 28th rounds.

(Period of surveys) NSS rounds	Quantity of cereals (0.00 Kg.)							
	Rice		Wheat		Others		Total	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
25th (July 1970-June 1971)	6.85	5.53	2.78	4.12	5.72	1.71	15.35	11.36
27th (October 1972-September1973)	6.59	4.94	3.88	4.82	4.79	1.48	15.26	11.24
28th (October 1973-June 1974)	6.90	5.38	3.52	4.32	4.67	1.62	15.09	11.32

(Data India No.7; 1980; I)

112 Edible oils - big buffer stock planned

The State Trading Corporation (STC) will maintain a buffer stock of about 200,000 tonnes of imported edible oils. Import arrangements have been made involving a million tonnes so far. Arrivals have been planned in such a way that STC is able to maintain the stock amount at any point of time. It already has 200,000 tonnes in hand - rape seed, palm, soyabean, RBD palm and palmoline oils.

(Data India. No.2; 1980; 17)

113 Production in food industry

(Quantity in Metric tons)

Sl No.	Industry	No. of units	Installed capacity	Production	
				Qty.	Value (Rs./lacs)
1.	Baby food	15	48,998	37,543	6,809
2.	Milk powder	22	50,000	27,970	4,126
3.	Condensed Milk	6	13,300	4,703	486

(Contd....)

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4.	M.M. Food	9	20,418	20,287	3,701
5.	Cheese	1	600	797	144
6.	Weaning and High protein food	3	8,300	2,603	548
7.	Egg powder	1	300	102	88
8.	Drinking chocolate	3	1,500	75	13
9.	Chocolate	5	4,410	1,800	619
10.	Malt Extract	4	7,300	3,029	106
11.	Meat products	4	1,600	1,300	350
12.	Starch	10	2,25,580	1,30,691	3,127
13.	Liquid Glucose	8	88,500	28,714	861
14.	Dextrose	2	30,600	15,915	712
15.	Butter	10	12,500	10,196	1,929
16.	Ghee	19	16,500	15,901	3,180
17.	Casein	3	850	25	3
18.	Modified Milk Food	1	1,750	1,642	341
19.	Fruits and Vegetables	31	97,867	37,883	1,780

(PFNDAI Newsletter No.2; 1980; 1)

114 Future trend in supply of Guargum

Year	Qty. (tons)
1979-80	50,000
1980-81	70,000 to 75,000
1981-82	82,000
1982-83	85,000 to 90,000
1983-84	100,000

(Profodcil Bulletin. 14(2); 1979; 7)

115 Demand for guar gum by different sectors

Industry	Market trend
Food	15 to 20%
Textiles	25%
Mining	10%
Petroleum	15%
Paper	10%
Other Misc.	10%

(Profodcil Bulletin. 14(2); 1979; 13)

116 Utilisation of sugarcane for different purposes during 1977-78 season (Provisional)

(Thousand Tonnes)

States	Production of sugarcane	Sugarcane utilised for: White sugar	Percentage	Seed, Feed chewing. etc.	Percentage	Gur and Khandsari	Percentage	Percentage of Gur to cane	Production of Gur (Including Khandsari)
Andhra Pradesh	13268	4526	34.87	1015	7.65	7627	57.48	10.98	837
Assam	1430	81	5.65	177	12.41	1172	81.94	10.21	120
Bihar	4953	3118	62.89	703	14.18	1137	22.93	10.00	114
Madhya Pradesh	2394	755	31.53	297	12.41	1342	56.06	10.00	134
Tamil Nadu	17160	5466	31.85	1730	10.08	9964	58.07	11.35	1131
Maharashtra	23320	19239	82.50	2215	9.50	1866	8.00	11.08	207
Karnataka	11120	5807	52.22	1016	9.14	4297	38.64	10.00	430
Punjab	6520	1101	16.89	815	12.50	4604	70.61	10.00	460
Haryana	8970	1802	20.09	1121	12.50	6047	67.41	10.00	605
Utter Pradesh	80756	20548	25.44	11144	13.80	49064	60.76	10.00	4906
Other States	11732	4749	40.48	1456	12.41	5527	47.11	10.00	533
All India	181628	67292	37.05	21689	11.94	92647	51.01	10.25	9497

(Profodcil Bulletin. 14(2); 1979; 26)

117 Projection of consumer demand for jaggery

Million tonnes

1971 Base	1985 High Rural	1985 High Urban	1985 High Total	1985 Low Rural	1985 Low Urban	1985 Low Total	2000 High Rural	2000 High Urban	2000 High Total	2000 Low Rural	2000 Low Urban	2000 Low Total
7.44	11.47	1.09	12.56	9.29	1.03	10.32	14.77	1.80	16.57	11.95	1.69	13.64

(Profodcil Bulletin. 14(2); 1979; 18)

118 Processed foods - A statistical survey for 1977-78

Quantity in Kg.
Value in Rs.

MUSHROOMS

Country	Quantity	Value
Belgium	505	3,57,904
Canada	2	1,125
France	13,976	86,06,121
German FR	350	2,76,995
Japan	240	57,320
Kuwait	270	35,667
Netherlands	30	23,093
New Zealand	600	63,962
Sweden	200	1,51,233
Switzerland	22,480	1,26,22,984
U.K.	300	1,60,031
USA	888	6,01,997
Total	39,841	2,99,58,432

TAPIOCA CHIPS

German FR	95,35,198	91,60,429
Kuwait	20,000	77,198
Nepal	45	120
Netherlands	91,09,201	72,60,263

Country	Quantity	Value
Spain	5,00,000	4,20,557
Sri Lanka	23,767	45,690
UAE	180	502
UK	250	941
Total	1,91,88,641	1,69,65,700
MANGOES		
Australia	28,102	2,58,594
Bahrein	3,62,812	32,50,791
Bangla Desh	14,511	24,197
Belgium	6,552.	73,585
Canada	96	900
Ethiopia	8	48
France	456	7,280
German FR	862	8,390
Hong Kong	2,360	21,864
Kuwait	5,83,694	51,46,372
Lebanon	300	3,690
Malaysia	1,260	10,676
Nepal	3,420	20,220
Oman	1,20,129	11,86,465
Peru	1,000	10,000
Qatar	2,06,012	18,16,612
Saudi Arabia	34,918	3,05,036
Seychelles	711	2,732
Singapore	84,682	3,13,177
Switzerland	811	8,338
UAE	16,96,868	1,68,22,354
UK	1,37,283	10,13,615
USA	1,656	8,699
USSR	951	7,602
Yemen AR	80,000	6,40,000
Total	33,69,454	3,09,61,237

Country	Quantity	Value
ORANGES		
Bahrein	1,48,376	4,07,110
Bangla Desh	36,67,277	62,44,007
Iran	9,13,324	23,49,796
Japan	280	1,580
Kuwait	11,736	59,487
Malaysia	120	700
Oman	12,315	66,117
Qatar	12,686	58,513
Saudi Arabia	865	3,430
Singapore	1,125	4,025
UAE	3,46,932	9,03,704
UK	9,970	28,320
Total	51,25,006	1,01,26,789
BANANAS		
Bahrein	325	1,558
Kuwait	1,493	6,660
Nepal	2,040	4,986
Oman	90	408
Qatar	515	3,045
UAE	105	347
Total	4,568	17,004
APRICOT KERNEL		
China Rep	20,000	1,15,625
German FR	14,799	1,36,491
Greece	4,513	49,810
Hong Kong	3,000	29,201
Italy	2,69,160	19,28,580
Japan	33,700	4,32,360
Kuwait	494	3,792
Netherlands	9,833	1,19,480
Norway	20,035	2,45,500
Sweden	30,581	3,06,231
Total	4,06,115	33,67,070

Country	Quantity	Value
ONIONS		
Bahrein Is	17,11,600	23,96,500
Canada	9,902	14,623
Czechoslovakia	19,50,681	30,12,975
France	1,20,000	1,89,924
Italy	3,250	7,978
Japan	50	100
Kuwait	53,86,125	68,73,709
Malaysia	1,61,39,258	2,93,32,838
Mauritius	14,00,000	24,17,616
Nepal	7,622	8,478
Oman	7,50,000	9,82,844
Qatar	14,40,000	18,71,918
Saudi Arabia	1,30,000	1,56,390
Seychelles	2,31,092	2,90,057
Singapore	52,87,112	88,85,710
Sri Lanka	9,49,125	23,73,502
UAE	92,94,600	1,21,69,268
USA	4,00,000	6,60,000
USSR	10,610,667	1,64,28,394
Yugoslavia	1,000,000	26,61,996
Total	56,821,084	9,07,34,820
MANGO CHUTNEY/PICKLES		
Australia	35,186	5,80,933
Bahrein Is	41,612	1,68,875
Belgium	315	3,832
Brunei	259	2,583
Canada	50,351	5,08,590
Cyprus	213	3,141
Denmark	37,667	2,63,235
Ethiopia	23,842	1,22,447
France	4,120	55,432
German DR	11,070	54,853
German FR	177,269	8,72,256
Greece	48	774

Country	Quantity	Value
Hong Kong	11,560	87,890
Iraq	695,735	39,32,217
Italy	2,626	51,598
Japan	66,768	4,22,852
Jordan	1,200	11,663
Kenya	4,494	29,729
Kuwait	118,615	8,37,853
Malaysia	6,529	40,225
Mauritius	1,200	7,000
Netherlands	56,539	2,96,992
New Zealand	2,070	28,968
Norway	3,240	31,610
Oman	77,910	5,26,834
Portugal	1,069	6,760
Qatar	16,796	1,11,301
Saudi Arabia	238,230	13,73,791
Seychelles	645	11,910
Singapore	78,059	[illegible]
Swaziland	314	5,508
Sweden	18,184	2,01,127
Switzerland	4,407	35,470
Syria	15,280	1,18,704
Thailand	133	1,309
UAE	226,216	11,92,735
UK	1470,090	[illegible]
USA	324,618	34,21,111
USSR	59,996	2,15,371
Yemen PDR	480	4,024
Yemen AR	6,280	51,001
Yugoslavia	4,238	22,489
Zambia	180	3,000
Total	3895,653	2,17,22,921

Country	Quantity	Value
TAMARIND SEED AND SEED POWDER		
Bahrein Is.	11,458	31,644
Canada	62,257	86,811
Ethiopia	14,560	2,59,424
France	636,480	8,42,036
German FR	256,000	3,69,368
Hong Kong	120	631
Iraq	642,900	14,41,869
Israel	6,060	29,861
Italy	682,040	8,69,376
Japan	1481,000	20,16,788
Kenya	456,005	7,05,875
Korea Rep.	5,000	9,000
Kuwait	4,000	21,000
Martinique	500	3,234
Nepal	37,500	50,550
Netherlands	414,000	6,07,695
Oman	5,894	31,538
Pakistan	1,200	1,339
Saudi Arabia	13,050	1,20,572
Seychelles	425	2,700
Singapore	50	300
UAE	98,036	1,95,862
UK	52,650	1,25,509
USA	944,605	11,93,622
USSR	12,550	30,680
Total	5838,340	90,47,284
MAIZE GLUTEN		
Iraq	100,000	65,510
Malaysia	100,000	1,84,134
Nepal	20,000	12,500
Singapore	1910,000	20,94,158
UK	98,000	95,101
Total	2228,000	24,51,403

Country	Quantity	Value
GREEN PEPPER IN BRINE		
Bahrein Is.	10,800	46,325
Belgium	9,000	85,789
France	1,758	44,481
German FR	3,489	42,450
New Zealand	1,200	5,635
Saudi Arabia	9,600	46,120
Sweden	1,680	43,903
UAE	14,400	54,740
UK	102,966	6,07,246
USA	982	5,093
Total	155,875	9,81,782
LEMONS & LIMES		
Afghanistan	250	1,250
Bahrein Is.	65,070	4,44,284
Bangla Desh	11,705	27,314
Canada	35	200
Japan	430	3,300
Nepal	12,651	41,199
Kuwait	12,169	76,896
Oman	11,872	75,253
Qatar	15,397	1,00,450
Saudi Arabia	7,425	47,429
Singapore	9,043	27,850
UAE	5,225	28,595
UK	506	1,550
Total	151,778	8,75,570

Country	Quantity	Value
GRAPE FRUIT		
Bahrein Is.	1,096	11,480
Kuwait	3,749	41,284
Oman	196	2,767
Other E Africa	20	440
Qatar	250	1,680
Saudi Arabia	175	1,278
UAE	3,838	34,500
Total	9,324	93,429
CITRUS FRUIT		
Bahrein Is.	47,125	51,600
Bangla Desh	201,559	4,06,103
Kuwait	37	510
Nepal	6,123	15,369
Qatar	674	4,068
Saudi Arabia	300	1,200
UAE	1,137	3,229
Total	256,955	4,82,079
APPLES FRESH		
Bangla Desh	517,258	15,70,920
Kuwait	395	2,400
Nepal	1,065	4,390
Oman	8,885	65,441
Qatar	1,039	8,316
UAE	60,773	3,86,993
Uk	500	2,155
Total	589,915	20,40,615
GRAPES FRESH		
Bahrein	5,547	53,698
Bangla Desh	14,164	72,769
Italy	828	5,104
Kuwait	13,006	1,24,026
Oman	3,996	44,553
Qatar	6,742	60,656
Saudi Arabia	2,410	20,480
Seychelles	100	800
UAE	34,778	3,61,505
UK	2,035	7,330
Total	83,606	7,50,921

Country	Quantity	Value
PEAR QUINCE FRESH		
Bahrein Is.	28	214
Bangla Desh	402,396	5,22,874
Kuwait	198	2,970
Oman	1,968	5,499
Singapore	650	1,600
Total	405,240	5,33,157
APRICOTS		
Bahrein Is.	75	300
Italy	9,040	1,18,763
Oman	42	270
Qatar	70	560
Total	9,227	1,19,893
PEACHES		
Bahrein Is	350	1,500
Oman	1,623	9,649
Total	1,973	11,149
PLUMS		
Bahrein Is	5,990	26,743
Bangla Desh	5,675	7,259
Kuwait	760	3,348
Oman	6,256	12,884
Qatar	50	210
Saudi Arabia	400	1,600
UK	250	960
Total	19,391	53,004
SAPOTA		
Bahrein Is	46,310	2,12,240
Canada	20	80
Iraq	90	450

Country	Quantity	Value
Japan	260	1,240
Kuwait	10,511	51,261
Oman	7,175	35,622
Qatar	7,649	40,258
Saudi Arabia	5,348	26,323
Singapore	234	816
UAE	31,434	1,47,872
UK	7,391	37,137
Total	116,422	5,53,299
OTHER STONE FRUIT		
Bahrein Is	22,245	83,884
Kuwait	11,555	72,379
Nepal	900	6,618
Oman	2,677	13,907
Qatar	3,172	14,421
Saudi Arabia	4,746	26,054
Singapore	3,000	4,725
UAE	6,322	22,762
UK	7,063	34,842
Total	61,680	2,79,592
BERRIES FRESH		
Baherin Is	1,065	3,848
Kuwait	223	778
Oman	100	350
Qatar	60	225
Saudi Arabia	780	3,120
UAE	1,150	4,600
UK	60	240
Total	3,438	13,161
PINEAPPLES FRESH		
Bahrein Is	13,216	74,167
Canada	140	743

ountry	Quantity	Value
uwait	40,029	1,74,379
ebanon	698	3,490
epal	900	4,581
man	2,849	16,102
atar	5,869	30,119
audi Arabia	16,045	66,196
AE	28,144	1,14,081
K	855	5,350
otal	108,745	4,89,208
ATES EXCLUDING WET		
angla Desh	62,936	2,45,818
uwait	262	1,128
atar	763	3,800
SA	120	531
otal	64,081	2,51,277
UAVA		
ahrein Is	4,987	20,166
anada	340	884
uwait	8,230	31,917
epal	6,295	7,505
man	1,475	6,504
atar	1,261	5,639
audi Arabia	3,419	11,410
AE	11,483	54,745
K	3,637	17,860
otal	41,127	1,56,630
POMEGRANATES		
ahrein Is	270	2,372
angla Desh	12,411	47,499
anada	25	470
uwait	353	1,639
alaysia	25	446

Country	Quantity	Value
Oman	300	2,100
Qatar	750	4,575
UAE	614	4,360
UK	330	2,833
USA	4,500	48,973
Total	19,578	1,15,267

TAMARIND FRESH

Australia	48,000	1,58,388
Bahrein Is	30,616	1,19,879
German FR	4,200	8,367
Iran	10,265	28,457
Iraq	604,400	16,43,263
Italy	22,150	46,715
Japan	1,425	5,705
Kuwait	31,480	1,36,925
Oman	19,025	71,912
Qatar	50,794	1,38,775
Saudi Arabia	5,800	20,685
Singapore	3,000	10,575
Somalia	3,000	10,350
Syria	15,000	54,023
UAE	45,088	1,61,407
UK	4,872	24,848
USA	10,461	35,352
Total	909,576	26,76,626

(Profodcil Bulletin. 14(2); 1979; 40-53)

119 Export of sal seed derivatives by Hindustan Lever Ltd.

Hindustan Lever Limited have nearly doubled their exports from Rs.17 crores in 1978 to over Rs.32 crores in 1979.

The company's single largest export in 1979 was its own product- processed sal derivatives - manufactured in its plant at Bombay. This

product alone earned Rs.10 crores in foreign exchange. The processed sal derivates are used in Europe in the manufacture of cocoa butter substitute.

Nearly 43,000 square miles of area in Orissa, Madhya Pradesh and Assam is covered with sal forests. The seeds falling from sal trees yield 14-16 per cent of a greenish yellow fat, potential of which is estimated around 700,000 tonnes. Prior to 1967-68 this vast natural resource was not exploited to any large extent. It has been estimated that 170,000 tonnes of sal seeds are being collected on an average every year. At the collection rate of 15 Kgs per man day, the employment thus created is of the order of 11 million days, i.e., equivalent to 37,000 men employed for a year.
(Amrit Bazaar Patrika. 26th Feb. 1980; p 9)

120 Sops for exporters

Manufacturers working under customs bond and whose entire production is meant for export have been exempted from all Central excise formalities, including the need to obtain a licence to manufacture.

According to a notification issued by the Ministry of Finance, this measure is meant to act as an export incentive for those who produce goods out of imported material and, later, export the finished products.

By customs bond is meant that the manufacturing process remains within the supervision of the customs.

The full exemption from licensing control and excise formalities is however, given on the condition that all of the finished products including any intermediate products or wastes arising out of the manufacturing process, are exported.

If it is not possible to export any of these items, they are expected to be destroyed.

In case any of the items are diverted to the home market for consumption, then the exemption from licensing control will be withdrawn and all the Central excise formalities will automatically come into force.

The notification states that none of the exemptions will be extended in case finished goods attract some excise duty even on export.
(Financial Express. 17th Jan. 1980; p 1)

121 Port facilities for exporters and ship-owners at Kandla Port

The Kandla Port Trust has informed that the following facilities and concessions are provided for exporters and shipowners at the Port:

1) Out of 5 cargo jetty berths, one berth is reserved for priority berthing of vessels loading/unloading cargo on liner terms.

2) 50% concession in shipping charges on all general cargo vessels loading and unloading cargo upto 3000 tonnes. These charges are for services like pilotage, tug hire, berth hire etc.

3) Exemption from payment of additional fee for pilotage and use of port tugs on Sundays, Port holidays and night operations in respect of general cargo vessels loading/unloading cargo upto 3000 tonnes of cargo.

4) Exemption of shifting charges and fees for use of tugs for shifting general cargo vessels loading/unloading cargo upto 3000 tonnes.

5) 25% concession in crane charges when cranes are used for loading export cargo in the ships.

6) 25% rebate in wharfage charges on cargo exported to foreign as well as Indian Ports except in cases where separate rates of export wharfage are indicated.

7) 25% rebate in storage charges for cargo exported to foreign as well as Indian Ports.

8) A free period of 15 days is allowed in transit sheds for export cargo as against the free period of 4 days for import cargo.

9) 50% concession in cargo lift charges for lifts provided in the warehouses for hoisting cargo to first floors of warehouses.
(Spices Newsletter. 13(11/12); 1979; 8)

122 Fresh look at vegetable exports

The Union Government is examining afresh the question of exports of mutton, livestock and fresh vegetables in view of their rising prices in the domestic market. The Agriculture Ministry is taking up the issue with the

Commerce Ministry to find ways to regulate the exports of these commodities.

Agriculture Ministry sources feel that unregulated exports of these items have contributed to the unusual and steady rise in prices during the last few months. The new Agriculture Minister Mr. Birender Singh has voiced his concern over the unregulated and almost reckless shipments of livestock and meat to meet the needs of consumers in Asian countries.

The export of meat and livestock, had particularly shot up during 1979. During this period the prices of mutton within the country shot up from between Rs.10 and 11 per kg to Rs.16 to 18 per kg. Though, the export of goat meat is officially, banned this restriction is not implemented strictly.

Mr. Birender Singh is of the view that the question should be examined from the overall national interest since it affected not only the domestic consumers, but the country's agricultural economy. He is worried over the shipment of planeloads of buffaloes, and other cattle for slaughtering abroad. He is in favour of a proper study to determine the exportable surplus. The question is being examined in the Krishi Bhawan from all angles.

Similarly, the Minister is not enthused about the export of fresh vegetables, when the local consumers have to pay high prices. He wants the Ministry to formulate schemes for stepping up the production of vegetables. He had said that only if there is an exportable surplus, vegetables should be sold abroad. He has asked the experts to examine the feasibility of exporting frozen vegetables.

Among the steps being planned by the Agriculture Ministry to increase vegetable output are incentives to the farmers and proper marketing facilities. The Ministry would encourage schemes at the state level for provision of inputs like seeds and fertilizers to farmers and for facilities to market the same without the aid of middlemen.
(Indian Express. 25th Jan. 1980; p 9)

123 Export of Guargum

India exported 56,307 tonnes of guargum valued at Rs.19.06 crores during 1977-78 as against 45,111 tonnes valued at Rs.15.12 crores exported during 1976-77.
(Profodcil Bulletin. 14(2); 1979; 1)

124 Meat exports banned

The centre has banned the export of meat. No pre-ban commitments will be permitted since the ban has been imposed in the public interest. The ban came following a strike by butchers and other meat merchants in Delhi protesting against large-scale exports which had pushed up local prices. (Data India. No.6; 1980; 65)

125 Tea export trends

Tea exports in 1978-79 were 177.3 million kg. as compared to 221.52 million kg. in 1977-78. This fall in exports was mainly due to less purchases by the main importing countries who had overstocked in 1977-78, the incompetitiveness of Indian teas vis-a-vis teas from other countries probably due to the then prevalent export duty and overall lack of buoancy in the export trade. In February 1979, however, the export duty on tea was removed and the export have since started picking up.

In order to encourage tea exports, the Government provides cash assistance at the rate of 12½ percent on f.o.b. price for packet tea and tea bag exports at the rate of 10 percent for instant tea exports. Moreover, packet tea exporters are eligible to refund of additional excise duty on packet tea exported.
(Economic and Commercial News. 10(8); 1980; 5)

126 Attention: Exporters to Japan

According to Embassy of India, Japan has authorised M/s. World Import Mart Company Ltd., world Import Mart Building, 8th Floor, 1-3, Higashi Ikebukuro 3-chome, Toshima-ku. Tokyo 170, Japan,who have offered their services to the Indian exporters, for increasing the exports to Japan.

The services, offered by M/s. World Import Mart Co., Ltd. are the followings:

- Investment counseling, helping overseas businessmen and government officials who are trying to attract Japanese investment to meet with Japanese Industrialists looking for overseas investment opportunities.

- Market surveys, for specific products, including their suitability for the Japanese market.

- Total coordination and promotion for seminars, exhibitions and fairs, arranging business appointments, even making travel arrangements.

- Setting up representative office services for organizations presently without representation in Japan.

- Translating and printing materials in Japanese.

Members, who desire to have their services, may kindly get in touch with them directly.
(Spices Newsletter. 13(11/12); 1979; 7)

127 **Attention: exporters to East Africa**

Federation of Indian Chamber of Commerce and Industry of East Africa has since been amalgamated into the present Kenya National Chamber of Commerce and Industry. The prospective exporters to East African region may in future address their enquiries to: "Kenya National Chamber of Commerce and Industry, Ufanisi House, P.O. Box 47024, Nairobi, Kenya."
(Spices Newsletter. 13(11/12); 1979; 7)

128 **How to approach the German market**

German Foreign Trade Information Office has released a publication by name 'How to approach the German Market' - (Information for Exporter from abroad). The purpose of this publication is to facilitate access to the German market for exporters from abroad.

Copies of the above publication from German Foreign Trade Information Office, Post fach 108007, Blaubach 13, D-500 Koln 1, Federal Republic of Germany are available to addresses in the developing countries free of charge, on request. For other orders there is a charge to cover costs of DM 3 per cop
(Spices Newsletter. 13(11/12); 1979; 5)

129 **The New zealand market for spices**

New zealand imports all its spice requirements. Most spices are exempt from import licence controls as long as they are imported unground and

in other than retail packs. Most spices are subject to import licence control (and very little provision is made for imports) if imported ground and/or in retail packs. The exemption to the above two general rules are:

(a) Curry powder which is subject to import licence whether in bulk or retail packs. Provision is made each year for imports of curry powder.

(b) Unground turmeric which is exempt from import licence control, however packed. (Ground turmeric however packed is subject to import licence).

Most spices are imported in bulk and ground (where required) and packaged in Newzealand.
(Spices Newsletter. 13(11/12); 1979; 5, 6).

30 Export of Spices to Trinidad and Tobago

The items of spices restricted for import into Trinidad and Tobago under normal circumstances from the countries in the Caribbean Community region only are garlic, black pepper, white pepper, cinnamon and cloves; this list is known as the negative list.

However, if an importer desires to import the above items which are one the Negative List, special permission from the Ministry of Industry and Commerce is required to be taken if such an item is to be obtained from outside the Caricon region.

Indian exporters are advised to insist on a firm irrevocable without recourse, Letter of Credit whenever orders are being placed on the Trinidad importers for items on the Negative List, to avoid difficulties in respect of payment of bills. Items falling outside the list may continue to be shipped without insisting on a L/C at exporter's discretion.
(Spices Newsletter. 13(11/12); 1979; 8)

31 Trade Protocol between Poland and India

India and Poland signed a trade protocol for 1980 in New Delhi on 30th November, 1979 which envisages a total turnover of Rs.200 crores.

In the list of imports from Poland are included important industrial raw materials like urea, sulphur, zinc, DDT and other chemicals, steel and

requirements of various power stations textile machinery, ships equipment, computer peripherals etc.,

The export list includes, apart from traditional items like oil cakes, tea and spices, consumer goods like cosmetics, toilet soaps, sports goods and handicrafts. Cotton, jute, textiles, and engineering goods such as textile machinery, machine tools and handtools also figure in the list. (Spices Newsletter. 13(11/12); 1979; 5)

132 Trade enquiries

Mohamed Reza Eftekhar, Avenue Moshtagh, Tehran, Iran desires to import black pepper, turmeric, bleached ginger, cinnamon, cardamom, preserved ginger, gunny cloth and gunny bags.
(Industrial News Digest. 3(3); 1980; 15).

TRANSFER OF TECHNOLOGY AND NEW INDUSTRIES

133 Appropriate Technology Centre, Madras

An Appropriate Technology Centre has been set up at the newly constituted Perarignar Anna University of Technology in Madras. Its goal will be the development of appropriate technology for rural applications under the following broad framework: (i) rural housing; (ii) non-depletable energy sources; (iii) rural agriculture; (iv) small-scale industry; (v) rural services and (vi) environmental sanitation and health. Beginning with collection and documentation of information in the field of appropriate technology, the Centre's final goal is to actively involve itself in the development of prototypes for rural applications, by engaging the faculty members and students of the University as well as local small industries and development agencies in various projects. Provision of consultancy services will also be considered, depending upon the specific needs of users. Any correspondence should be addressed to Dr. S. Sathikh, Co-ordinator, Appropriate Technology Centre, Perarignar Anna University of Technology, Guindy, Madras 600 025, India.
(Appropriate Technology. 6(1); 1979; 2)

134 UNICEF help for small-scale food processing plant in M.P.

The United Nations Children's Fund (UNICEF) will assist the Government of India in setting up a small scale food processing plant in the district of Dhar, Madhya Pradesh. This plant with 4-ton per day capacity will produce nutritious food products for children, pregnant women and lactating mothers covered by Government sponsored or recommended welfare programmes in M.P. The UNICEF assistance for this project is valued at Rs.19.12 lakhs ($ 239,000).

The Government has assigned to the M.P. State Agro Industries Development Corporation Ltd, the responsibility for the implementation of the project. It is estimated that the production from the plant will covar about 40,000 beneficiaries per day. UNICEF will provide necessary supplies and equipment and expenditure on training of core staff in India.
(UN Weekly Newsletter. 31(9); 1980; 1)

135. Licensing for small units

The Union Government has proposed the introduction of a system (as registration certificate) of industrial licensing for protecting small scale industries. Under the proposed system, all small units would have to register themselves with the governments of their States. The registration certificates that would be issued to them would specify the location of units, raw materials to be consumed, and goods to be produced whether they are finished products or intermediates or ancilliaries. These apart, the capacity would also be specified. No unit would produce excess of the capacity specified, the defaulter would be proceeded against, and on conviction would be imprisoned for six months or fined Rs.10,000.

The proposal also includes a provision relating to payments by large sector towards supplies made by small industries. While it concedes the right of small industries to expect payment within 60 days after effecting supplies, it actually debars a small industry from initiating legal proceedings against defaulter.
(Industrial News Digest. 3(1); 1980; 6)

136 Bank aid for indoor mushroom development

The State Bank of Patiala will finance a project for indoor mushroom cultivation launched by the State government in collaboration with the United Nations Development Programme (UNDP). The project aims at providing a supplementary source of income to small marginal farmers and agricultural labourers. It covers Chail, Solan, Dharmapur and Kandaghat town. The small Farmers Development Agency (SFDA) in Solan will identify beneficiaries having spare rooms for mushroom cultivation. Arrangements for marketing at reasonable rates will also be made. A mushroom unit of 50 trays will cost Rs.2,400 and is expected to yield an annual income of Rs.2,360. Small farmers will be entitled to a 25% subsidy and marginal farmers and agricultural labourers 33⅓%. The remaining cost will be met through loans which will be repayable in three years in nine instalments. 100 units are planned to be set up in the project area within two years.
(Data India. No.2; 1980; 20)

137 Rs.330-m project to carp production

The Central Agriculture Ministry is undertaking a Rs.330-million inland fisheries project designed to increase carp production in five states, with a credit of $ 20 m. (Rs.165 million) from the International Development Association. The project is to increase carp production in West Bengal, Bihar, Orissa, Madhya Pradesh (MP) and Uttar Pradesh (UP) through the construction of hatcheries, improvements in fish ponds, strengthening of extension services and establishment of training centres. The income and living standards of nearly 100,000 families engaged in fish farming are expected to improve as a result of the project. When completed in 1985, the project is expected to help produce 450 million high quality fingerlings a year, which in turn will help increase carp production by about 200,000 tonnes annually. The project covers 58 districts and includes about 258,000 hectares of fish ponds, each five hectares or less in size. 27 modern carp hatcheries are to be constructed and approach roads built to link them with road and rail communications. Fish ponds will be improved and fish culture centres strengthened. Fisheries training centres are to be established in West Bengal, Bihar and UP and the existing centres in MP improved with additional civil works, equipment and vehicles. The remaining portion of the funds will be contributed by the Centre, the participating

States, the Agricultural Refinance and Development Corporation and the participating banks and farmers. The IDA credit is for 50 years, including 10 years of grace. It is interest free, except for a service charge of three-quarter per cent to meet IDA's administration costs.
(Data India. No.2; 1980; 16)

138 Modern Bakeries to take up edible oil production

Modern Bakeries, a Government of India enterprise, will be taking up production of edible oil shortly. It is all set to take over an oil factory at Ujjain in Madhya Pradesh on March 1.
(National Herald. 2nd February 1980; p 4)

139 Expenditure on research in different states

Maharashtra leads other States in the expenditure on research and development by the private industries with an investment of over Rs.16.24 crores during 1976-77, according to official figures.

West Bengal comes second with Rs.5.73 crores followed by Gujarat with Rs.5.30 crore.

The expenditure on research and development by the private sector in different States was computed by the Department of Science and Technology on the basis of location of research and development centres.

The total expenditure on research and development by private industries in different States had increased from Rs.34.64 crore in 1974-75 to Rs.40.67 crore in 1975-76, and to Rs.47.39 crore in 1976-77. The expenditure covered 326 industrial units.

The Union Territory of Delhi spent Rs.1.21 crore on research and development and Karnataka Rs.3.13 crore. Tamil Nadu spent Rs.1.76 crore. The expenditure in Andhra Pradesh was Rs.1.11 crore.

Rajasthan comes at the bottom with an expenditure of Rs.2 lakh.

The following are the expenditure figures (in Rs. lakhs):

Assam 17.94, Bihar 21.54, Haryana 85.09, Kerala 20.60, Madhya Pradesh 54.81, Orissa 39.60, Punjab 5.75 and Uttar Pradesh 43.92.
(Tribune. 23rd February 1980; p 7)

FOOD REGULATION, QUALITY CONTROL AND HYGIENE

Amendment (First) to PFA rules, 1980

In the prevention of Food Adulteration Rules, 1955, (hereinafter referred to as said rules), in rule 42, after sub-rule(s) the following sub-rule shall be inserted, namely:-

"(T) every container of refined salseed fat shall bear the [illegible] label, namely:-

REFINED SALSEED FAT
FOR USE IN BAKERY AND CONFECTIONERY ONLY

In rule 49 of the said rules, after sub-rule (8), the following [illegible] shall be inserted, namely:-

"[illegible] for BAKERY AND CONFECTIONERY and it shall be refined and shall bear the label [illegible].

In [illegible] of the said rules, after item A.10.06, the following item and entries shall be added namely:-

" A.10.07 - Refined salseed fat means the fat obtained from seed [illegible] shorea robusta [illegible] by [illegible] with alkali, bleaching with bleaching earth or activated [illegible] of oils, and deodorising with steam, no other chemical agents being used. Fractionation, dewaxification, bleaching and deodorization may be [illegible] by physical means. The salseed shall be clear at melting and free from [illegible] sediment, suspended or other foreign matter, separated water or [illegible] substance. There shall be no turbidity after keeping the [illegible] sample at 10°C for 24 hours. It shall conform to the following standards:-

(i)	Moisture	Not more than 0.1 per cent
(ii)	Butyro-refractometer reading at 40°C	36.7 - 51.0
	OR	
	Refractive Index at 40°C	1.4500 - 1.4600
(iii)	Iodine value (Wij's method)	31 - 45
(iv)	Saponification value	1801 - 95
(v)	Unsaponifiable matter	Not more than 2.5 percent by weight
(vi)	Free fatty acids (expressed as Oleic acid)	Not more than 0.25 percent by weight
	OR	
	Acid value	Not more than 0.5
(vii)	9, 10 epoxy and 9, 10 dihydroxy stearic acid	Not more than 3.0 percent by weight
(viii)	Flash point (Pensky Marten closed method)	Not less than 250°C."

(The Gazette of India (Extraordinary). Part II, Section 3, Sub-section (i); January 28, 1980; 34)

141 Amendment (Second) to PFA Rules 1980

1. (a) These rules may be called the Prevention of Food Adulteration (Second Amendment) Rules, 1980.

(b) They shall come into force on the date of their publication in the Official Gazette except sub-clauses (i) and (vi) of clause 10, which shall come into force after the expiry of six months from the date of publication of these rules.

2. In the Prevention of Food Adulteration Rules, 1955 (hereinafter referred to as said rules) in rule 28, 29 and 48 A for the words, 'coaltar dyes' wherever they occur, the words, 'coaltar food colours' shall be substituted.

3. In rule 30 of the said rules, for the words, "coaltar colours" or "mixtures of permitted coaltar colour", the words, "coaltar food colours or mixtures of coaltar food colours" shall be substituted.

4. In rule 32 of the said rules, after clause (e), the following clauses shall be inserted, namely:-

"(f) the month and year in which the commodity is manufactured or packed.

Provided that no declaration as to the month and year in which the commodity is manufactured or pre-packed shall be required to be made on --

(i) any bottle containing liquid milk, liquid beverage containing milk as an ingredient, soft drink and ready to serve food beverages or the like which is returnable by the consumer for re-filling;

(ii) any package containing bread, any uncanned vegetable fruits, ice-cream, butter cheese, fish, meat or any other like commodity;

(iii) any food package where the net weight or measure of the commodity is tuenty grams or twenty milliliters or less, if sold by weight or measura.

(Explanation: liquid milk does not include condensed milk. The month and the year in which the commodity is manufactured or prepacked [illegible] expressed either in words or in numerals indicating the month or the year or the both)"

[illegible] for the said rules, ———

[illegible] in clause (c) the following shall be inserted at the end namely:-

"alternatively colours of the caps of the milk bottles shall be indicative of the nature of milk contained in them, the classification of colours being displayed at places where milk is [illegible] for sale, provided that the same had been simultaneously intimated to the concerned [illegible]. Other [illegible] information like [illegible]";

(b) After sub-rule (7), the following sub-rule shall be inserted, namely:-

"(U) Every package of hydrolysed vegetable protein cubes which contain mono-sodium glutamate shall bear the following label, namely:-

This package of.....contains mono- sodium glutamate NOT FOR USE BY THE CHILDREN BELOW 12 MONTHS

6 In the second proviso to rule 44 of the said rules, for the words and figures, "a maximum tolerance of 5.0 red units" the words and figures "a maximum tolerance limit of 15.0 red units" shall be substituted.

7. Rule 56 shall be omitted.

8. In rule 57 of the said rules, in the Table, against sub-item (i) of item 2, in Column 2 and 3, after the words and figures "carbonated water" and "1.5", the words and figures, "Toddy" and "5.0" shall respectively be inserted.

9. After rule 64-AA of the said rules, the following shall be inserted namely:-

"64B: Use of mono-sodium glutamate: Mono-sodium glutamate may be added to the vegetable soups before reconstitution to a maximum limit of 0.05 per cent under label declaration as specified in rule 42(U). It shall not be added to any food for use by the children below 12 months."

10. In Appendix 'B' to the said rules;

(i) In term A. 11.01.02, after the words; "and shall be maintained thereat until delivery" shall be omitted;

(ii) In item A. 11.02.08, after the words, "with or without cane sugar", the following words shall be inserted, namely:-
"Dextrose, liquid glucose and dried liquid glucose".

(iii) In item A. 11.02.09 after the words, "with or without cane sugar", the following words shall be inserted namely:-
"Dextrose, liquid glucose and dried liquid glucose"

(iv) In item A.18.12 in the proviso, -----
(i) after the figures and words, "1.8 percent", the following shall be inserted, namely:-

"and the total fat shall not be less than 6.0 percent".

(ii) the following may be added in the end, namely:-

"Malted milk food containing cocoa powder may also contain added sugar".

(v) In item A.18.14 after the entry potassium bromate", the following entry shall be inserted, namely;

"Ammonium chloride.....Not more than 0.05 percent.
Punga-alpha-amylase...Not more than 0.01 percent".

(vi) After item A.28, the following item shall be inserted namely:-

"A.29, Beverages --- Alcoholic;

A.29.01. Toddy: Toddy means the sap from coconut, date, toddy palm tree or any other kind of palm tree which has undergone alcoholic fermentation. It shall be white cloudy in appearance which sediments on standing and shall possess characteristic flavour derived from the sap and fermentation without addition of extraneous alcohol. It shall be free from added colouring matter, dirt, other foreign matter or any other impediment injurious to health. It shall also be free of chloral hydrate and barbiturates.

It shall also conform to the following standard namely:-

(a) Alcoholic content....Not less than 5 percent (v/v).

(b) Total acid as tartaric acid (expressed in terms of 100 litres of absolute alcohol).... Not more than 400 grams.

(c) Volatile acid as acetic acid (expressed in terms of 100 litres of absolute alcohol).....Not more than 100 grams".

(The Gazette of India. Part II, Section 3, Sub-section (i); March 1st, 1980: 389, 390)

142 Draft Rules of PFA (Amendment) 1980

1. These rules may be called the Prevention of Food Adulteration (Amendment) Rules, 1980.

2. In the Prevention of Food Adulteration Rules, 1965, in Appendix 'B' for item A. 05.07, the following item and explanation shall be substituted nemely:-

"A. 05.07-Cloves (Laung) whole means the dried unopened flower buds of Eugenia/caryophyllate Thumb. It shall not contain more than 5.0 percent headless cloves by weight. The extraneous matter which includes dirt, dust, mud, stones, pieces of wood, all other particles originating from the plant other than cloves, tendril cloves (the floral peduncle of cloves) and peduncles shall not exceed 1.0 per cent by weight and the amount of insect damaged matter shall not exceed 5.0 percent by weight. The cloves shall contain not less than 15.0 percent (v/w) of volatile oil.

Explanation - (i) The term "insect damaged matter" means cloves that are partially or wholly bored by insects.

(ii) The term "headless cloves" means cloves constituted only by the receptacle and sepals."
(The Gazette of India. Part II, Section 3, Sub-section (i); No.10; March 8, 1980; 434)

143 Packaged Commodity Amendment Rules 1980

Amendments have been made to the Standards of Weights and Measures (Packaged Commodities) Rules 1977 which is called as the Standards of Weights and Measures (Packaged Commodities) Amendment Rules 1980.

Items included are penalty for contravention of rules amended rules for packaging of cereal products, condensed milk, cooking oils, Vanaspathi, ghee, margarine, honey, ice cream in bricks and in cups, jams, sauces ketchup and the like, soft drinks, toffees, boiled confectionery and the like chocolate and chocolate products.
(The Gazette of India. (Extraordinary). Part II, Section 3, Subsection (i); February 23, 1980; 110)

144 Exemption from customs tariff

In exercise of the powers conferred by sub-section (i) of section 25 of the Customs Act, 1962 (52 of 1962), read with sub-section (4) of section

31 of the Finance Act, 1979 (21 of 1979), the Central Government, being satisfied that it is necessary in the public interest so to do, hereby exempts the goods specified in column (3) of the Table annexed hereto and falling under the Heading No. or sub-heading No. of Heading No of the First Schedule to the Customs Tariff Act, 1975 (51 of 1975), specified in the corresponding entry in columr (2) of the said Table, from the whole of the auxiliary duty of customs leviable thereon under subsection (1) of section 31 of the said Finance Act.

TABLE

Sl No.	Heading No. of sub-heading No. of Heading No. in the First Schedule to the Customs Tariff Act, 1975.	Description of goods
1	2	3
1.	08.01/13	Prunes and grapes, fresh.
2.	21.01/07	Milk foods for infants and invalids, canned or bottled.

(The Gazette of India (Extraordinary) Part II, Section 3, Sub-section (1); March 4, 1980; 132)

145 Device to Check Adulteration

A new device to determine adulteration in edible oils, diesel, milk lubricating oils, paints and varnishes etc, has been developed. It is claimed this is the first electronic device in the country.

The cost of imported Viscometer to find out the viscosity of liquids only is about Rs.16,000 and that for gases is nearly Rs.40,000. But the device developed will find out viscosity of both liquids and gases and will cost less than Rs.15,000.
(Seminar Reporteur. 9(11); 1979; 21).

146 Vitamin C Levels in Food Products

Technical applications of vitamin C levels proposed in the EEC list for food processing industry

Fruit juices and fruit juice beverages lemonades, syrups	...	200 mg/lit
Beer	...	100 mg/lit
Wine	...	200 mg/lit
Meat & Meat products (Curing)	...	1 g/kg
Fresh Meat products	...	2 g/kg
Frozen fruits and vegetables	...	2 g/kg
Flour and bread improver	...	100 mg/kg
Fish frozen or processed	...	1 g/kg
Margarine	...	300 mg/kg
Milk, dry, non-fat	...	500 mg/kg
Yoghurt	...	500 mg/kg
Potatoes raw, peeled	...	2 g/kg
Potato products	...	2 g/kg

(Indian Chemical Journal. 14(7); 1980; 32)

147 Fibre reduces egg cholesterol

Feeding dietary fibre to laying hens can reduce the cholesterol content of egg yolks by as much as 13 percent, according to a U.S. Department of Agriculture Scientist.

The greatest reduction (13.3%) in egg yolk cholesterol occurred when the scientist fed the hens fibre from sunflower meal. The diet contained 8.8 percent sunflower meal fibre. The other fibre-containing diets were less successful. Interestingly, however, egg yolk cholesterol was reduced by about 10 percent when about 10 percent fibre from wood shavings was added to the diet.

(Poultry Tribune. 85(2); 1979; 6, 10).

148 Hygienic quality of sugarcane juice

Sugarcane juice, a popular drink in all parts of India, particularly in summer is usually considered as a safe drink for human consumption. It is believed that its high sugar concentration compared with the added lemon juice and ginger extract will not only enhance the flavour and palatability but also make its environment non cononial to microorganisms. It was found that Sch. schmitzii could survive for 18 days in plain sugar cane juice followed by

. Para B (8 days) and S. typhosa (2 days). With this addition of lemon juice and ginger extract they could survive only for 2 days. From these studies it is concluded that once the intestinal pathogenic organisms gain entry into the juice which is quite likely looking to the environmental conditions in which it is extracted and served, there is no possibility of these organisms being eliminated because of the high sugar concentration of the juice and addition of lemon juice and ginger extract. The liberal use of ice in these stalls to chill the sugarcane juice also enhances the possibilities of microorganisms entering the sugarcane juice because of the way, the ice is stored and handled in these stalls.

(Indian Journal of Environmental Health. 21(1); 1979; 61-66)

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